

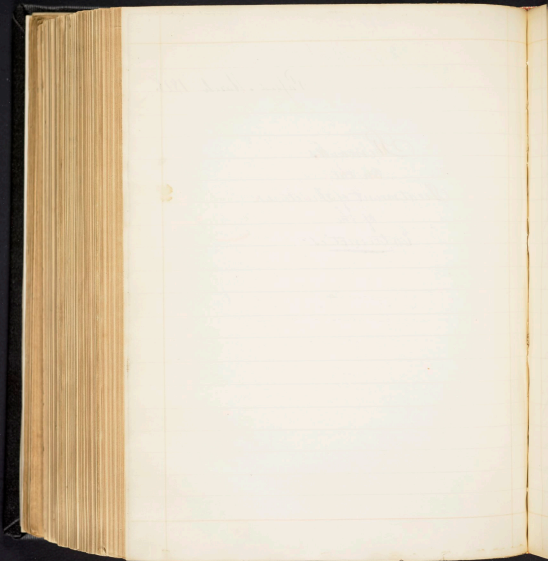
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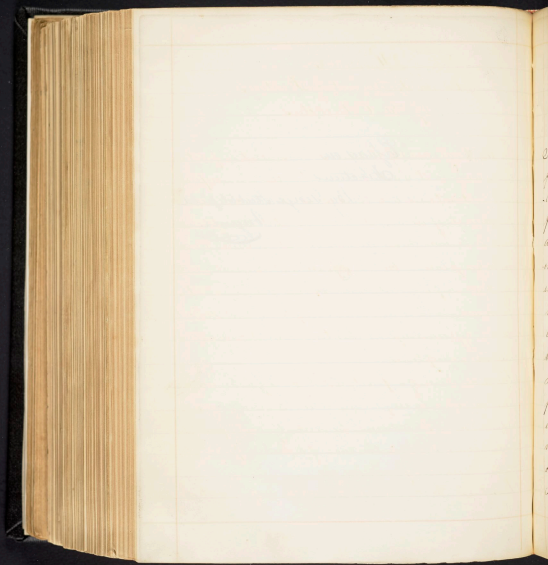
235 Market

Passed March 1828.

Remarks
on the
Treatment of Fractures
of the
Extremities



Essay on
Fractures
By George Stubblefield
Virginia
1888

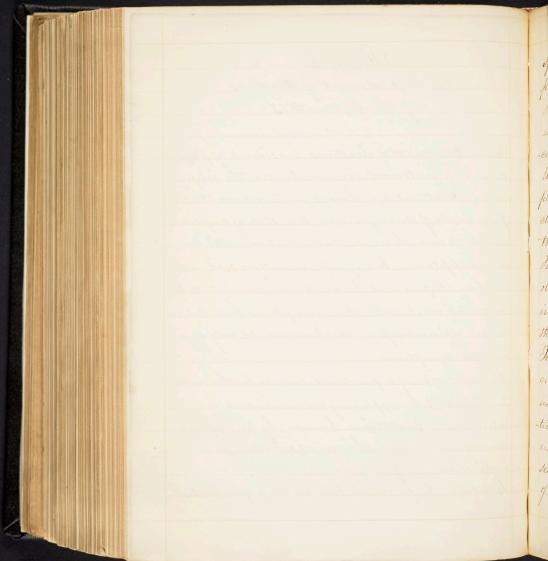


Remarks
on the Treatment of Fractures
of the Extremities

In the treatment of Fractures, considered a part from any untoward circumstances, the important indications are obvious — to reduce the fragments of deranged bone, to a state of coaptation, and to secure them in that situation until reunion takes place — but if inflammation and swelling have supervened before the surgeon is called, he must wait until those symptoms have subsided as an officiousness at this time would only aggravate the symptoms —

The reduction of a fractured bone is for the most part effected by employing extension and counter extension — Sometimes, however, by an opposite management, as in the case of a broken patella or the olecranon process.

To retain the fractured bone in the proper position,

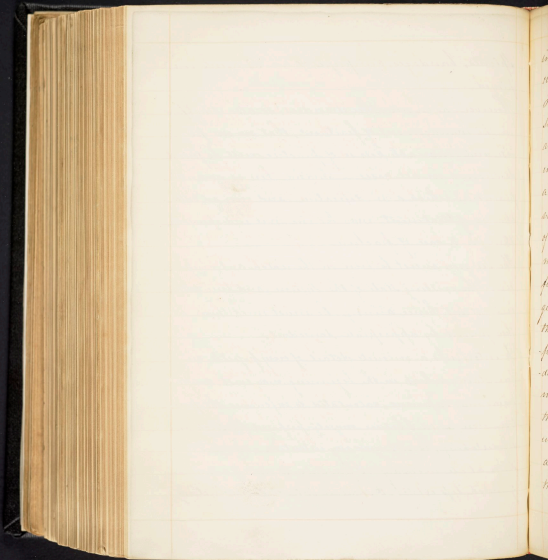


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Splints, bandages, compresses &c are the agents employed,

However, as in all other disorders, so also it happens in the management of fractures, that no one precise and invariable course of practice will be found to succeed in all cases - Indeed there is no complaint in which a modification, and even an interchange of treatment may become more indispensable than in a case of fracture.

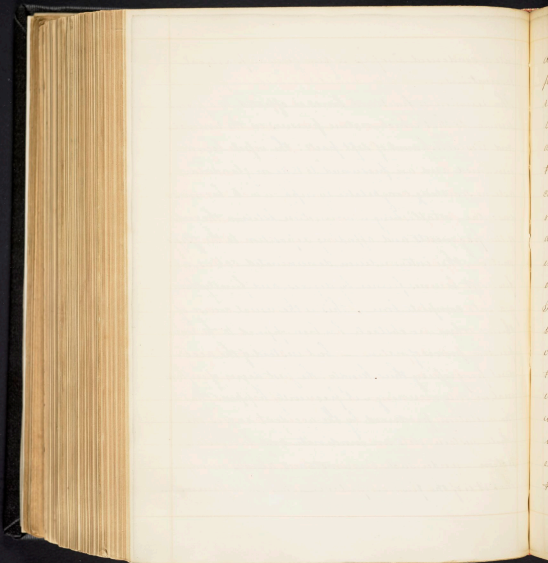
The Surgeon must be ever on the watch and carefully observe the existing state of the system and true to the indications thence arising, he must meet them as they present by appropriate remedies.

To enter into a minute detail of every possible circumstance which in the beginning may exist, or afterwards may supervene, calculated to influence the practice, even could I believe myself prepared for such an undertaking, is not now my intention, nor does it seem at all necessary - I prescribe to myself a range of much less extent, & shall be satisfied in collecting



into a condensed comp^os a few general practical observations, -

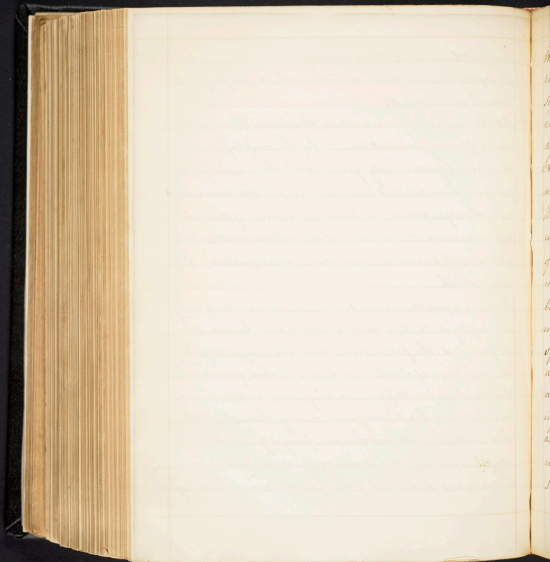
The reunion of fractured bones is effected by a process similar to that which nature pursues in the removal and reestablishment of soft parts: the vessels become inflamed and are presumed to take on glandular action secreting coagulable lymph, which becomes vascular, establishing a connection between the ends of the fragments and affording deposition to the gelie matter, this intermedium denominated callus, at first soft becomes firmer by degrees and finally changed into complete bone, this is the usual course of things when no obstacle has been opposed to the recuperative power of nature - but instead of the accident progressing thus kindly, the just degree of inflammation only occurring - it frequently happens that the irritation produced by the accident raises the whole system into an inordinate and irregular action - under such circumstances always mindful that it is of the first importance, that the inflammation



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does not transcend the adhesive stage, we must promptly recur to those remedies which are proper to reduce excitement.

At the head of those remedies, there can be no question about placing venesection. — by the employment of the lancet judiciously graduated ^{to}, the urgency of the case, we have a direct and most important command over the symptoms. — From the neglect of these valuable measures the violence of the inflammation may induce suppuration, ulceration, mortification, and even death.

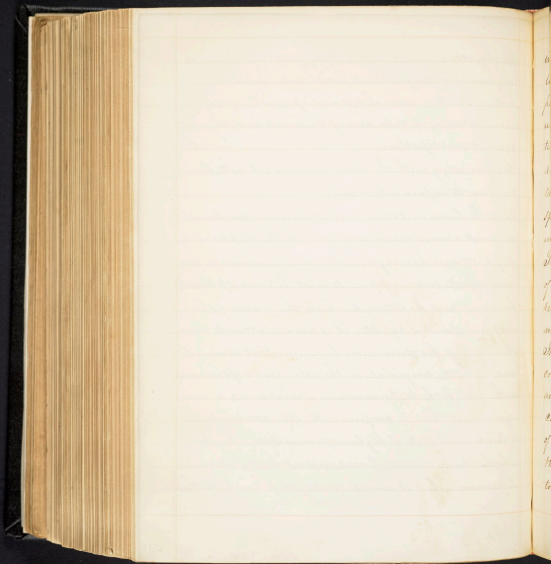
Purges are another remedy of high value, and may be employed to their full extent when the case demands it, provided the patient can have the advantage of the machine of Eonks so highly spoken of and exhibited by Professor Vibron — or any such contrivance as will prevent his disturbance during their operation — but without such contrivance purging becomes a remedy inapplicable to any case of fracture — which confines the patient to his bed — the motion accompanying



the operation would undoubtedly tend to produce derangement of the fractured bone, and irritation to the system. — It is nevertheless indispensable under all circumstances to take care of the bowels and to guard against constipation.

As coinciding with the above remedies, it will be necessary to enforce a low diet.

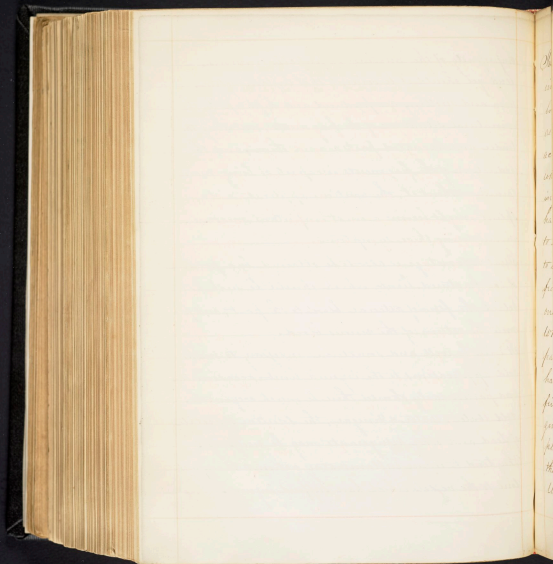
When the local irritation and swelling is considerable we must always remember to avoid the application of splints and bandages. — The idea of universal harmony which some suppose to exist between splints, bandages, and fractures, has been the source of the most mischievous results; it is an unfortunate error. Splints and fractures may be as much at variance and as little congenial as the solar rays to opthalmia or the cold bath to pneumonia — what could be more injudicious than to confine with splints & bandages a limb in a state of high inflammation & swelling whether such a state should exist at first or afterwards. Superfluous — but it would seem idle to dwell on the



impropriety of the measures so palpably erroneous.
And yet should it be evident that inflammation,
pain and swelling are produced and kept up by the
unnatural situation of the fragments, irritating the
tender and lacerated parts around them, and the
reduction of the fragments incapable of being main-
tained without it, the cautious application of a
Splint might become a most important measure
in subduing these symptoms.

Great advantage is also to be obtained by a position
of the fractured limb, which should be such as to
retard the flow of arterial blood to the part, and pro-
mote the return of the venous blood.

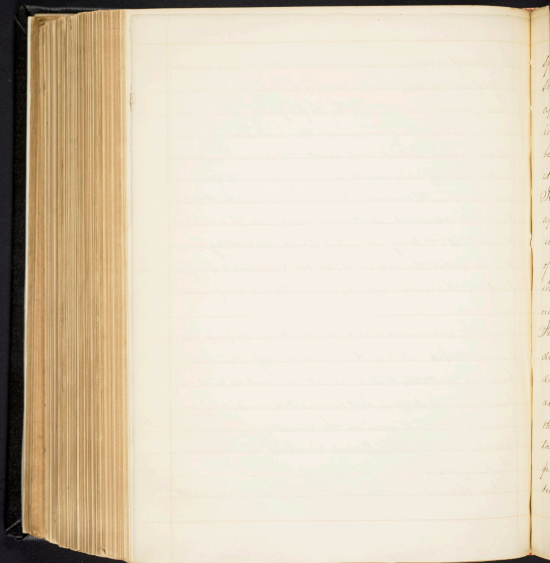
It will be well and sometimes necessary to make
cold applications to the injured limb, occasionally,
and particularly should there be much ecchymosis;
Cold Water, Water & Vinegar, the Solution of acetate
of Lead and other refrigerants may be necessary.
They tend to reduce inflammatory action and impart
tone to the vessels which have suffered injury.



In cases of simple comminuted fractures it is always improper to make a wound to extract loose pieces of bone, for if such should be so perfectly separated as to be incapable of reunion, they will inevitably act as foreign bodies, and excite the ulcerative process which will afford a much better opportunity of removing them. — However, should any important artery have been wounded, it then becomes indispensable to secure it, taking care if possible, in cutting down to it to avoid the cavity of the fracture. As a simple fracture is always less hazardous than a compound one.

When the circumstances of the fracture confine the patient to bed, it is of the greatest importance to have one suitable to his situation, and as such a firm hair mattress is best calculated, and may be generally obtained even in the country, and if not, planks covered with folded blankets so may answer the purpose.

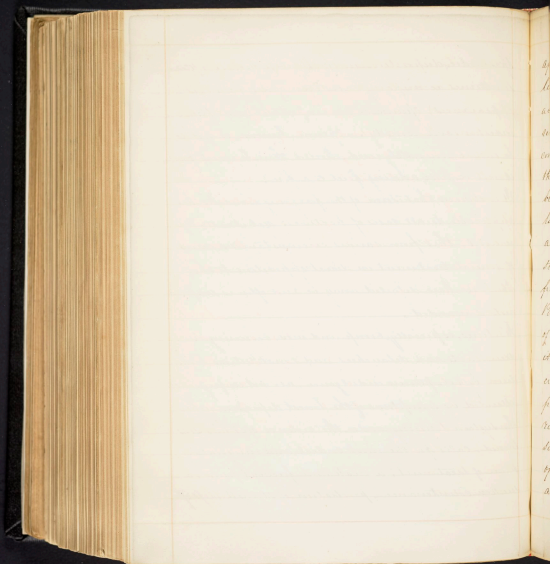
When there is considerable pain, restlessness, and



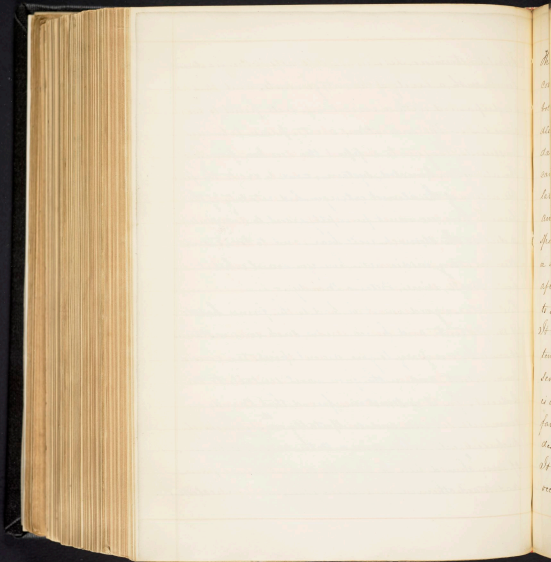
Spasmodic disposition in the limb (which symptoms sometimes accompany cases even of very favourable appearances) Opium is an important and often an indispensable remedy. — Opium, however, is not to be indiscriminately used, should there be much fever, it will be like adding fuel to a fire.

It is obvious that some of the foregoing remarks, are applicable to all cases of fracture: yet it is no less evident, that from various circumstances a course of general treatment in direct opposition to that which we have detailed may be and often is improperly demanded.

Fractures, especially compound ones, occurring in drunkards and debauchees, and constitutions broken down by voluptuous indulgence, are not infrequently attended by symptoms of the lowest debility, when the system tottering under the violence of it has sustained, calls for the most cordial and invigorating plan of treatment: a weak and frequent pulse, a sunk countenance, prostration of strength, loss of



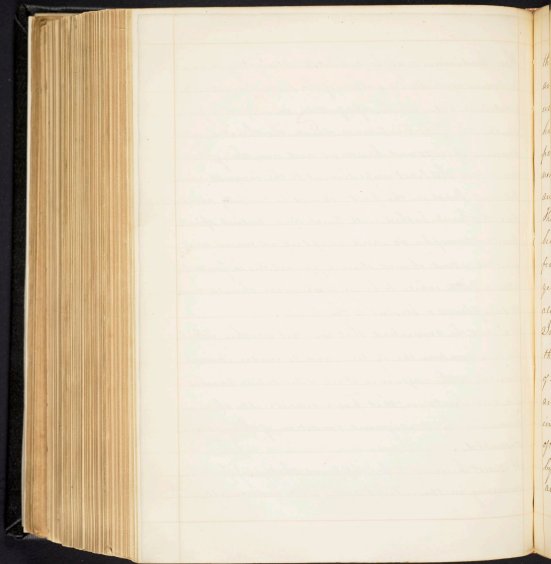
appetite, tremors, delirium, coldness of the fractured
limb, with a larity of the integuments, and this
accompanied with a vesication, will point to the
remedies. — The indications are too plain to be mis-
construed, they are to support the sunk powers of
the almost exhausted system, and to excite the fee-
ble action of the almost extinguished vitality of the
limb — here we must promptly resort to as nutritious
a diet as the stomach will bear, and to tonic and
stimulating medicines — here you must exhibit
freely, Bark, Wine, Puter a Brandy. — ~~Particular~~
Particular regard must be had to the former habits
of the patient, and hence under such circumstances
it may be necessary to give ardent spirits to a consid-
erable extent, and in the form most suitable to the
patient, for it is sometimes found that Brandy or
Rum will set well and comfortably on ^{the} stomachs of
such subjects, when wine or Puter cannot be borne,
Opium should here be liberally given to relieve pain
and to aid otherwise in answering the general indication.



These medicines may be exhibited alternately or in-
 concourse with various others of the same character, as
 volatile alkali, musk, opapostida &c — and to rekin-
 dle the life of the limb and obviate the threatening
 dangers, splints and bandages, and any thing that
 can oppose the least impediment to the languid circu-
 lation of blood in the part, should be carefully avoided;
 and the limb bathed with Tinct. Opie, ardent spirits,
 spirits of camphor &c — and wrapped up in warm wool
 or cotton, and should these applications be found
 after a little while to be unavailing we should resort
 to sinapisms or blisters to the limb.

It should be remarked that very hot weather, which
 tends to weaken the system, and to render it more
 sensible to the influence of all debilitating causes,
 is a circumstance that has a considerable share in
 forming the malignant condition of things above
 described.

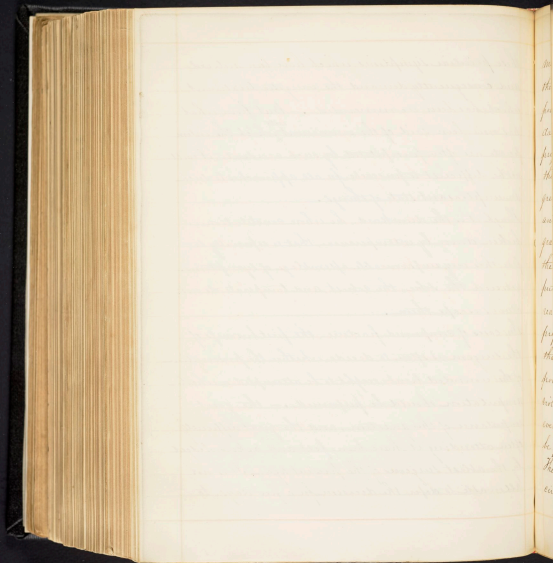
It is not however to be supposed that every fracture
 occurring in the intemperate, will induce all



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those peculiar symptoms which have been noticed
and consequently demand the energetic treatment
which has been recommended. — But from what
has now been said of the imminent ^{into} which the intem-
perate are often precipitated by such accidents, it will
not be difficult to prescribe for all approaches to such
an unpleasant state of things.

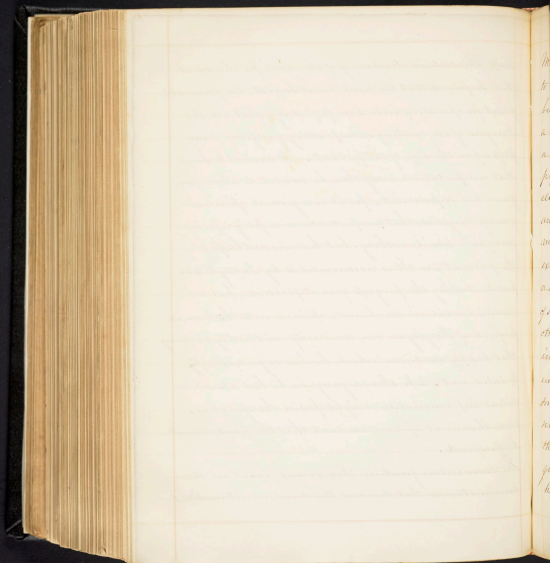
Though it is the drunkard, he whose constitution is
broken down by intemperance, that is especially to
fear this very unfavourable assemblage of symptoms,
yet, even the sober, the robust, and temperate do not
always escape them.

In cases of compound fracture, the first business of
the surgeon is often to decide whether the preservation
of the wounded limb ought to be attempted or whether
amputation should be performed. — the great
importance of this question, and the great difficulty
often attending it have been felt and acknowledged
by the ablest surgeons of the present age — It is not
allowable to defer the decision for a few days, to

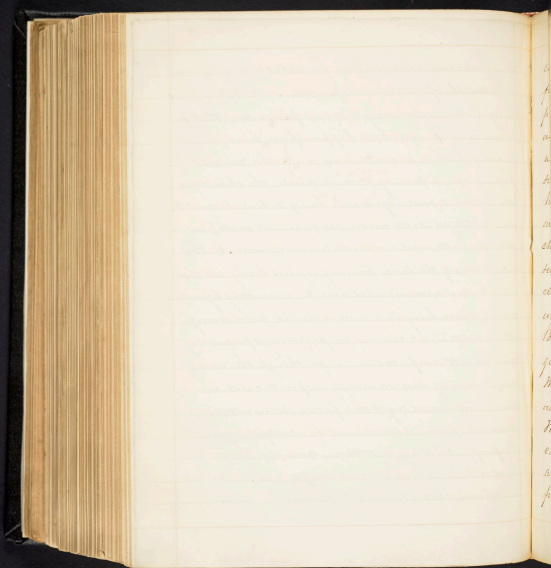


smile the certain tendency of the case, for should it then be found that the limit must be lost, the favorable point for operating will have passed by, and all the dangers of an existing or impending gangrene may prepossess the life of the patient. — It cannot be said that amputation may then be resorted to when gangrene has supervened, for it is a general opinion among surgeons, that amputation in a progressing gangrene avails nothing, but hurries on the fate of the patient. — It is recommended by Larrey to amputate during the progress of matification, but we readily concur in our humble opinion with the learned professor of Surgery in our university, in strictly observing that happy medium which he has so judiciously pointed out. — Or should gangrene be here about, the violent inflammation might forbid the operation, even should it appear evident that the limit cannot be preserved.

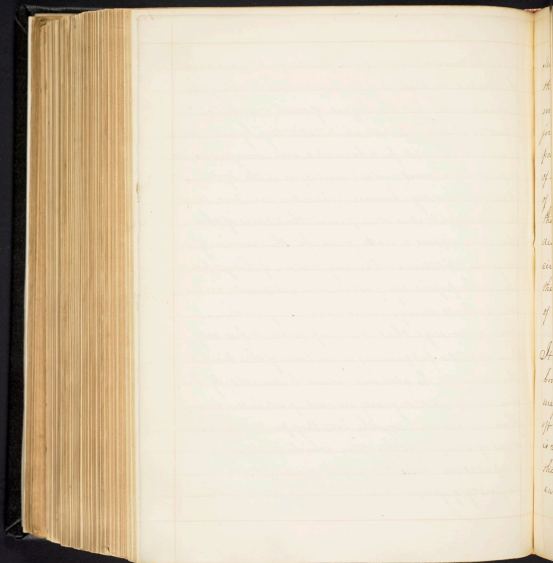
The momentous question then occurs, what are the circumstances that demand this dreadful alternative?



Many circumstances, says the celebrated Pott, may occur to render the operation indispensable. — the bone a bone being broken into many different pieces, and that for a considerable extent, as happens from broad wheels, a heavy bodies, a machinery, and other causes, passing over, a falling on such limbs, the skin, muscles, tendons, and ligaments being so torn, lacerated, and destroyed as to render gangrene and mortification most probable and immediate consequence. — The extremities of the bones forming a joint being crushed as it were comminuted, and the connecting ligament of such bones being torn and destroyed are among others sufficient reasons for proposing & performing immediate amputation — for though the most unpromising and seemingly desperate cases are sometimes cured, yet this fortunate result, very seldom happens, and cannot be alledged against the propriety of amputation, since experience the great arbiter in such cases, amply and reiterated has shown that attempts to preserve limbs, as

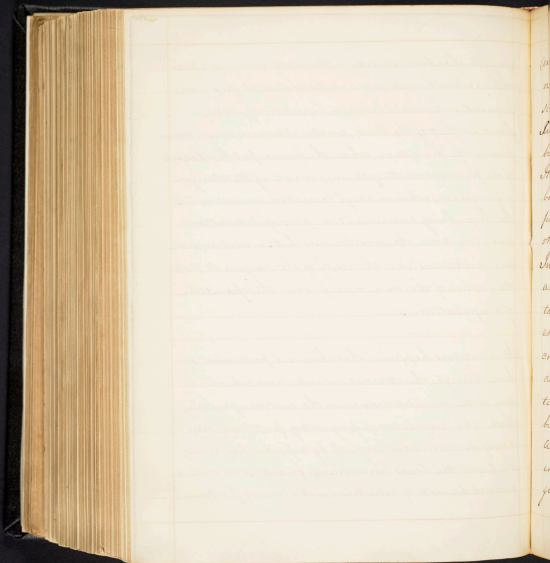


circumstances above have for the most part been frustrated by the loss of the limbs and death of the patients, and that the hazard of such a melancholy event is greatly lessened in substituting by amputation, a smooth incised for a lacerated and mangled wound, supplanting a most violent irritation to the system. Notwithstanding, however, what has now been said on the subject, it is still plain, that cases of this character afford a wide field for the exercise of surgical abilities. - The very nature of things precludes the possibility of establishing definite rules which shall always guide us in our practice. Boyer also says that it is impossible to fix any general rules for guiding us in cases of this kind. The surgeon, he also says, must be directed by his own talents and sagacity in each particular case. There are however, says the late Professor Gorcey, some cases of compound fracture which so obviously require amputation, that there exist no doubt about the propriety of performing it immediately if the

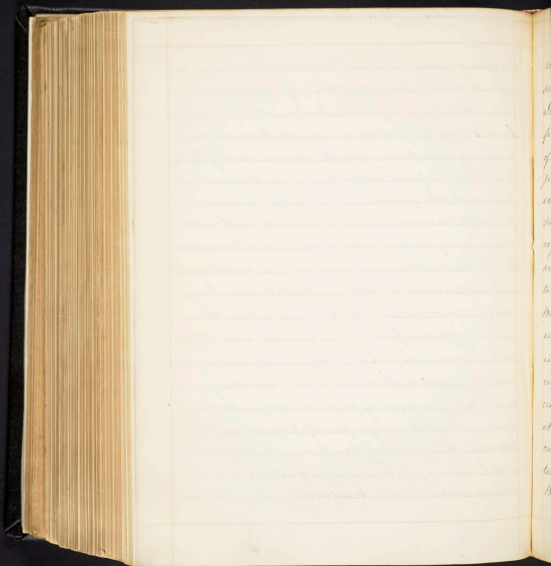


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Surgeon has been called within a few hours after the accident and before inflammation has commenced. These are when a luxation of a large joint as that of the knee, ankle, elbow, or wrist, accompanies the fracture, when the principal bloodvessels of the part are destroyed, augmenting the danger of gangrene, when a large lacerated wound exists, the bone being comminuted, part of its substance destroyed and the weather very hot. — under such circumstances it is the duty of the surgeon to state the nature of the case and propose the operation of amputation.

It sometimes happens, that there is a protrusion of bone through the external wound, and which it may be difficult to reduce — the custom of cutting off the sharp ends and projecting portions of bone is very seldom necessary, if by a proper position of the limb the bones remaining joined in the wound cannot be readily returned — it becomes proper

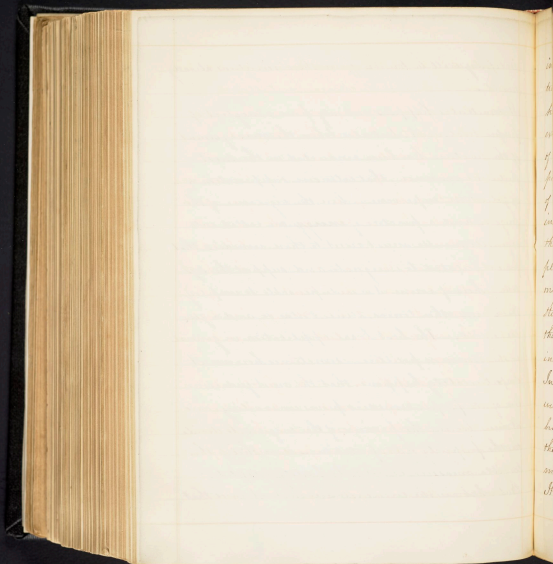


(instead of using violence) to dilate the wound in order to favour the reduction, by making an incision either down upon the bone, or outwards from it. In this way the patient is secured from much bruising and pain, and the incision readily heals. It will be proper to extract any loose fragments of bone, and the wound is to be treated on general principles according as it is incised, with little other injury, or as it may be contused or lacerated. In the first instance its sides are to be approximated and retained so by adhesive plasters, care being taken not to obstruct by this application, the discharge of effused fluid, - in gunshot, and other contused wounds, where suppuration is unavoidable, by reason of the severe injury, and disorganization of the surrounding parts - a soft poultice of bread and milk is a proper application. All these things having been premind, the accident is to be managed as a simple fracture, and the general constitutional treatment which may be



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necessary will be known from the observations already made.

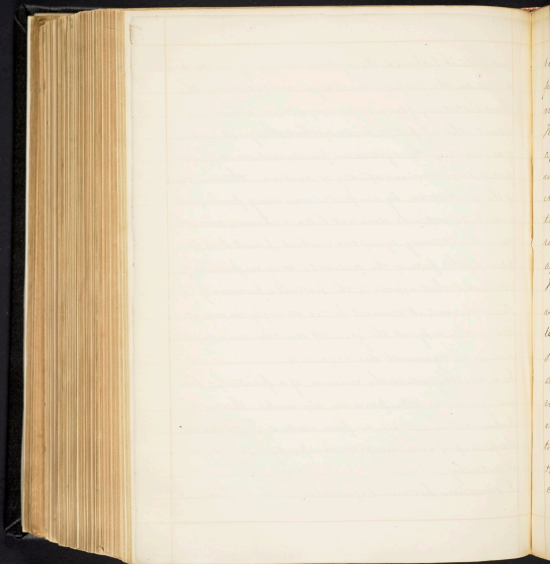
It sometimes happens not only from a neglect of proper treatment, but also when the management of the fracture has been conducted in the most judicious manner, that extensive suppurative & exfoliation supervene - here the vigilance of the surgeon and a practice of energy are called into requisition - we must resort to those remedies, that are calculated to invigorate and support the system - here of course it is indispensable to employ Barks and other tonics, Wine, Potass &c and a generous diet. - The best local application in general is the common poultice - sometimes however it unfortunately happens, that the most judicious use of all proper remedies proves unavailing, and it may become the province of the surgeon to decide on the propriety of amputation - nevertheless this terrible measure is not to be hastily adopted. But what are the circumstances in such cases that



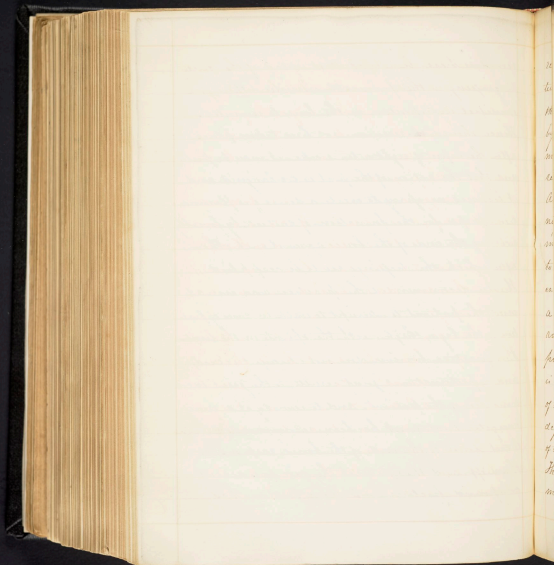
indicate it? Should the system become greatly prostrated by the profuse discharge, irritation &c. the hectic state of fever supervenes to an alarming extent, the appetite lost, so that the great means of sustaining the system is precluded, and the patient continues rapidly to decline, the removal of the irritation by amputation may perhaps & indeed sometimes does act like a charm arrest these threatening symptoms which point but too plainly the fate of the patient, may in fine be the only resort that affords to the patient a promise of life. Still however, it cannot be too strongly insisted that on this subject the greatest caution and discriminating judgement are required.

In a healthy adult the reunion of a fractured bone will generally take place in six weeks - that of a broken rib or clavicle in four weeks. - In children the process of reunion is more speedy - In old persons more tardy.

It sometimes however happens after all proper



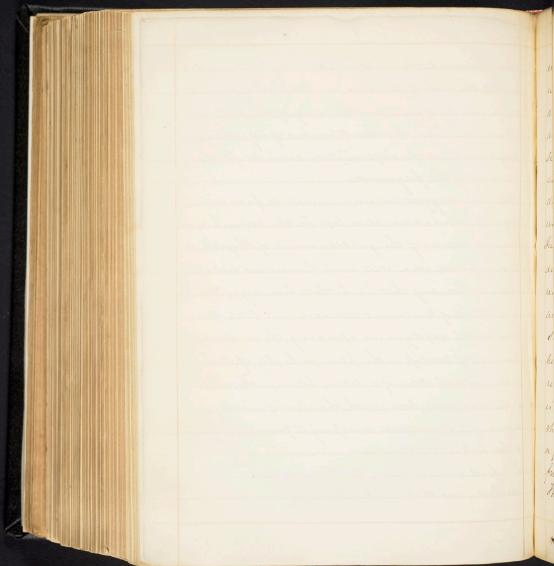
remedies have been tried that instead of the cure
progressing in this favorable manner—there is a
manifest indisposition in the bones to reunite.
Hence should ~~the~~ reunion not have taken place
after the lapse of eight or ten weeks—it may be presu-
med that the action of the part is too languid, and
it becomes necessary to excite a degree of inflamma-
tion proper for the formation of callus, by forcibly
rubbing the ends of the bones against each other,
after which the dressings are to be reapplied.
Hunter recommended this practice, and even ad-
vised the patient to attempt to walk in cases of frac-
ture of the leg or thigh, with the splints on the limb.
This practice however does not always succeed,
and a false joint results, to the great incon-
venience of the patient, and to remedy it a more
energetic treatment has been recommended, even
to cut down to the ends of the bones, rasp or saw
them off, and then to treat the case as a recent
compound fracture.—D. Rhea Barton has



recommended the application of argenticum nitra-
tum to the ends of the bones - Mr Hunter suggests
the propriety of exposing the cavity of the fracture
by an incision, that the stimulus of injections
might induce the inflammation requisite for the
reunion of the fragments -

All these suggestions were doomed to fall into
neglect - and it was still left for the superior and
mighty genius of the godlike mind of Phipps
to suggest an idea still more luminous and effi-
cacious than any that has hitherto been suggested,
a method of treatment attended with little pain
and entire safety, and affording the most ample
promise of success - the plan so highly spoken of
is the introduction of a seton between the ends
of the fractured bone, with the view of exciting a
degree of inflammation necessary to promote a reunion
of the broken portions -

The first case in which Dr Phipps tested his
method, was that of a fractured os humeri

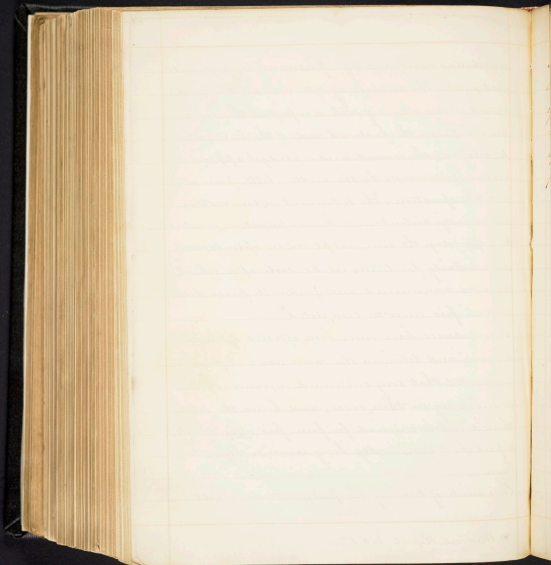


which was succeeded by a permanently putrefactive joint. The limb being extended, a seton needle armed with a skin of silk was passed through the arm between the fractured ends of the bone, the silk left in the wound and a pledget applied on each orifice made by the needle - little pain attended the operation, the subsequent inflammation was noways violent, and the suppuration moderate. In a few days, the arm was placed in splints, and dressed daily for twelve weeks, soon after which union commenced and gradually proceeded and in five months completed.*

Several cures have since been effected of the os humeri and tibia, in the same way - it must be reflected that long continued inflammation is necessary in those cases, and hence the seton should not be removed for four, five, or six months, or perhaps a year unless long union begin to form -

This mode of treating the putrefactive joint

* Medical Reports, vol 1 -



Succeeding to fracture of the bones, so important
 an acquisition to modern surgery - is but one
 of the numerous valuable improvements, which
 has flowed to it from the inexhaustable resources
 of that great man who now stands gloriously
 preeminent in the surgical world -

George Shurtlefield



Dr Gibson